URBAN SPRAWL AND BODY MASS INDEX: A FIXED-EFFECTS ANALYSIS IN TWO COHORTS OF OLDER WOMEN IN THE UNITED STATES

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Background and Aims: Growing research has highlighted how dense neighborhoods with connected street networks may influence body mass index (BMI) by providing opportunities for walking or bicycling. We aim to study whether this relationship exists prospectively in individuals who change neighborhoods.
Methods: This study examines the effect of changes in the county sprawl index, a measure of residential density and street accessibility, and changes in BMI in a sample of Nurses' Health Studies (NHS and NHSII) participants throughout 831 counties across the continental United States who moved at least once between 1986 and 2005 (n=10,519 nurses with 14,326 moves for NHS and n=11,560 nurses with 17,414 moves in NHSII).
Results: For NHS, the mean change in the county sprawl index from pre-move to post-move address was -9.3 (standard deviation 34.7), while for NHSII, the mean change in the county sprawl index was -10.8 (standard deviation 44.2). The mean change in BMI was 0.2 kg/m^2 (standard deviation 1.6) for NHS and 1.2 kg/m^2 (standard deviation 2.3) for NHSII. At first move, the average age of NHS participants was 60.3 years (range 39-83), and 40.1 years (range 26-57) for NHSII. In fixed-effects analyses adjusting for age, smoking status, race, and husband's education, moving to a county with a one standard deviation decrease (37.6) in the county sprawl index (indicating a move to a less dense, less compact county) was associated with a two-year change in BMI of 0.005 kg/m^2 (95% CI -0.024, 0.035) in NHS and -0.004 kg/m^2 (95% CI -0.037, 0.030) in NHSII. We found no evidence of effect modification by age, smoking status, race, or husband's education.
Conclusions: None of the associations examined in this study were statistically significant, indicating that moving less dense, less compact county is not associated in our study with change in BMI within two years.